

REMARKS

Applicants respectfully request reconsideration of the present application. Claims 1-22 have been rejected in the Office Action. Claims 1-2, 5-11, 13-14, 16, 18-19, and 21-22 have been amended. Support for the amendments may be found in the Specification, for instance, at ¶¶ [0075] and [0085]-[0090]. It is respectfully submitted that no new matter has been added to the present application. Reconsideration of the above-identified application in view of the above amendments and the following remarks is respectfully requested.

Objections – Double Patenting

Claims 1-22 were provisionally rejected on the grounds of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 and 21 of co-pending Application No. 10/722,631. Without conceding the propriety of the rejections of claims 1-22, Applicants will consider filing a terminal disclaimer to obviate these rejections when the present application is otherwise in condition for allowance. Applicants respectfully request that this rejection be held in abeyance.

Rejections based on 35 U.S.C. § 103(a)

Title 35 U.S.C. § 103(a) declares, a patent shall not issue when “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” The Supreme Court in *Graham v. John Deere* counseled that an obviousness determination is made by identifying: the scope and content of the prior art; the level of ordinary skill in the prior art; the differences between the claimed invention and prior art references; and secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1 (1966).

To support a finding of obviousness, the initial burden is on the Office to apply the framework outlined in *Graham* and to provide some “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727 at 1741, 82 USPQ2d at 1396 (quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006) with approval).” *See also* MPEP § 2142. “[R]ejections on obviousness cannot be sustained with mere conclusory statements.” *Id.* Thus, in order to establish a *prima facie* case of obviousness the Office must provide “a clear articulation of the reason(s) why the claimed invention would have been obvious” based on factual findings made while conducting the *Graham* factual inquiries. *See* MPEP § 2143. The Supreme Court in *KSR* noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. *Id.*

Claims 1-4 and 7-22 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,942,761 to Tuli et al. (hereinafter the “Tuli reference”) in view of U.S. Patent No. 6,182,892 to Angelo et al. (hereinafter the “Angelo reference”). As the asserted combination of references fails to teach or suggest all of the features set forth in the rejected claims, Applicants respectfully traverse the rejection as hereinafter set forth.

Claims 1-4 and 7-10

Independent claim 1 is directed to an input device for scanning a biometric image. The device includes a housing. The device also includes a scan head movably mounted to the housing wherein the scan head is comprised of at least a light source. The device additionally includes a platen moveably mounted to the housing and the scan head for movement relative to the housing and the scan head between a first position and a second position. The device also includes an encoder target having a grid pattern representing a plurality of binary numbers. The grid pattern and the platen are associated to allow the scan head to capture a plurality of scan

lines such that each member of the plurality of scan lines includes at least a portion of the pattern representing a binary number and at least a portion of the platen. The captured plurality of scan line are assembled based on a binary number value associated with the captured portion of the pattern. The device also includes a biasing device configured to bias the platen toward the first position. Further, the device includes a start of scan switch located such that the start of scan switch is activated when the platen moves in a downward translation from the first position and an end of scan switch located such that the end of scan switch is activated when the platen is at the second position.

In contrast to the invention of claim 1, the Tuli reference describes a fingerprint reading device that utilizes a patterned strip that determines the rate at which information is sent to the device's microprocessor. *See Tuli reference*, col. 6, lines 47-50. The uniform strip includes a white/clear portion followed by an opaque/black portion. *Id.*, FIG 4. As the platen advances forward across a sensor, a repeating sequence of clear and black portions are sensed. *Id.*, Col. 6, lines 57-60. "Each line of information on the fingerprint read by the sensor array is sent to the device's microprocessor at the instant a black [or opaque] element is simultaneously read..." *Id.*, Col. 6, lines 51-54. "Hence, each line of a fingerprint is aligned to a black or opaque element in the patterned strip." *Id.*, Col. 6, lines 55-57. Therefore, the black element of the pattern merely signals the sensor array to capture a line of information from the fingerprint, but the patterned strip does not provide additional information, such as what line has been captured. Instead, the patterned strip merely identifies that a line should be captured.

It is respectfully submitted that the patterned strip of the Tuli reference fails to teach or suggest an encoder target having a grid pattern representing a plurality of binary numbers as recited in independent claim 1. The binary numbers of the encoder target are

captured along with portion of the biometric information. The association of a binary number from the encoder target with the image from the platen allows for a plurality images of the platen to be assembled based on a binary number value associated with the captured portion of the pattern, as recited in claim 1. As previously discussed, the patterned strip of the Tuli reference merely serves as an indicator as to when an image should be captured, but it fails to teach or suggest utilizing the patterned strip for assembling a plurality of images based on a binary number associated with a particular portion of the strip. *See generally, Tuli reference*, col. 6, lines 44-46.

The Angelo reference describes a fingerprint authentication device in which a smart card is used to transmit the imprint of the fingerprint to a scanning device. *See Angelo reference*, Abstract. It is respectfully submitted that the Angelo reference, either alone or in combination with the Tuli reference, fails to teach or suggest the deficiencies of the Tuli reference identified above. In particular, the Angelo reference fails to teach or suggest an encoder target having a grid pattern representing a plurality of binary numbers.

The U.S. Patent No. 6,178,255 to Scott et al., (hereinafter the “Scott reference”) is an additional reference cited by the Office with respect to claims 5-6, but to expedite prosecution of the present application the Scott reference is discussed with respect to the amended claims. The Scott reference describes a fingerprint verifier that includes a slide prism, where the position of the slide prism is determined by “a binary absolute linear code” that is imaged by a camera. *See Scott reference*, Abstract. The Scott reference teaches that double diagonals are required to be utilized in the bar code to determine the least significant bits because the optics/camera do not permit the necessary resolution without the diagonals. *See Scott reference*, col. 5, lines 32-34; *See also, Scott reference*, FIG. 10. It is respectfully submitted that the Scott reference fails to

teach or suggest a grid pattern representing a plurality of binary numbers as recited in claim 1. Instead, the Scott reference utilizes a bar code (e.g., bar caliper 90 of FIG. 11) that is not a grid pattern. The bar code of the Scott reference is utilized to identify the absolute position of the platen. *See Scott reference*, col. 5, lines 19-21.

Accordingly, it is respectfully submitted that the Tuli reference as modified by the Angelo and Scott references does not teach or suggest all of the features of independent claim 1. Thus, Applicant respectfully submits that the Tuli, Angelo, and Scott references, either alone or in combination, fail to teach or suggest all of the features of independent claim 1. Therefore, a *prima facie* case of obviousness has not been established for independent claim 1. Accordingly, Applicant respectfully requests withdrawal of the rejection of claim 1 under 35 U.S.C. § 103(a). Claim 1 and is believed to be in condition for allowance and such favorable action is respectfully requested.

Dependent claim 2 depends directly from independent claim 1, which was discussed above. Dependent claim 2 is amended to include features previously included in claim 1, which was rejected by the Office under the Tuli reference in view of the Angelo reference. It is respectfully submitted that the Angelo reference fails to cure the Office's recognized deficiency of the Tuli reference to teach or suggest a linear array of gradient indexed lenses. *See Non-final Office Action dated 06/19/2008*, p. 2.

It is respectfully submitted that the combination of the Tuli and Angelo reference is improper as there is no suggestion or motivation to modify the Tuli reference to achieve the invention of claim 2 because such modification would change the principle of operation of the method in the Tuli reference. "If the proposed modification or combination of the prior art would change the principle of operation of the prior art being modified, then the teachings of the

references are not sufficient to render the claims *prima facie* obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).” MPEP § 2143.01 A principle of operation of the Tuli reference is to place a fingertip to be read on a moveable glass or transparent platen and to provide pressure from the finger to slide the platen forward across a linear array (to scan individual lines as the finger passes over the linear array). See *Tuli reference*, col. 2, lines 28-37. The finger slides across the linear array because an area type image pickup element (area type image pickup elements would not require a sliding motion as they capture the entire area without the object moving past the linear array) is less reliable and more expensive than a linear array. See *Tuli reference*, col. 2, lines 1-5. Therefore, the principle of operation of the Tuli reference avoids an area type image pickup element.

The Angelo reference on the other hand does not teach or suggest sliding the finger, but instead passes light from a laser to a beam splitter prism through a live-scan platen and into a card through an image port. The light continues through the card by way of a gradient index optical path to illuminate an image of the finger. The reflected light from the finger passes back through the same path onto an area type pickup element (CCD). See *Angelo reference*, col. 7, line 63 through col. 8, line 10. Because the Angelo reference fails to teach or suggest sliding a finger to capture the image, nor does it describe the image capture element sliding, the Angelo reference utilizes an area type image pickup when a gradient index optical path is utilized. Therefore, the combination of the Angelo reference with the Tuli reference would require the Tuli reference to adopt a card having a gradient index path, wherein the card does not permit the sliding of the finger and instead relies on an area type image capture element. Accordingly, Applicant respectfully submits that the modification would change the principle of operation of

the system in the Tuli reference, and thus there is no suggestion or motivation to modify the Tuli reference to achieve the invention of claim 2.

Additionally, it is respectfully submitted that the combination of the Tuli and Angelo reference is improper as there is no suggestion or motivation to modify the Tuli reference to achieve the invention of claim 2 because such modification would change the principle of operation of the method in the Tuli reference. The Angelo reference teaches that the gradient index optical path is integrated with a card that is removable from the scanner so that the card can be maintained by the person utilizing the card. *See Angelo reference*, col. 7, lines 53-60. Dependent claim 2 recites a scan head comprising a linear array of gradient indexed lenses. Because the gradient optical path of the Angelo reference is integrated with a removable card and not described, either explicitly or inherently, as part of a scan head, the modification of the Tuli reference to include a removable card would change the principle of operation of the Tuli reference that instead includes a scan head having a linear array of gradient indexed lenses.

Further, Applicant disagrees that the gradient index optical path teach or suggests the gradient indexed lenses recited in claim 2. The gradient index optical path of the Angelo reference merely allows the imprint platen and the image port to be offset. The light of the Angelo reference is still described as passing through a beam splitter prism and a microlens array or fiber taper after passing through the gradient index optical path. *See Angelo reference*, col. 7, line 60 through col. 8, line 9. Therefore, the Angelo reference fails to teach or suggest gradient indexed lenses, but instead merely describes an optical path to allow for an offset of an input and an output of light.

For the above discussed reasons and because of the dependency to claim 1, Applicant respectfully request withdrawal of the 35 U.S.C. § 103(a) rejection for dependent claim 2.

Claims 3-4 and 7-10 depend directly or indirectly from independent claim 1. As such, Applicant respectfully request withdrawal of the 35 U.S.C. § 103(a) rejections of these claims as well.

Claims 11-17

Independent claim 11 recites an input device for scanning a biometric image. The device includes a housing having an angled way. The device also includes a platen moveably mounted to the housing for movement between a first position and a second position. The platen being adaptive to receive the biometric image. The device additionally includes a scan head moveably mounted to the angled way, and the scan head is comprised of at least a light source. Movement of the platen causes the scan head to translate along the angled way. The device additionally includes an encoder target having a grid pattern representing a plurality of binary numbers. The grid pattern and the platen are associated to allow the scan head to capture a plurality of scan lines such that each member of the plurality of scan lines includes at least a portion of the grid pattern representing a binary number and at least a portion of the platen. The captured plurality of scan line are to be assembled based on the value associated with the captured portion of the grid pattern.

In addition to the reasons previously discussed with respect to independent claim 1, it is respectfully submitted that the references as cited fail to teach or suggest each and every feature of independent claim 11.

Independent claim 11 recites a housing having an angled way and a scan head that is moveably mounted to the angled way such that movement of a platen causes the scan head to translate along the angled way. The Office asserts that FIG. 1, element 1 of the Tuli reference teaches an angled way. *See Non-final Office Action dated 06/19/2008*, p. 7. However, FIG. 1, element 1 merely describes a housing and not a housing having an angled way. *See Tuli reference*, col. 5, lines 12-13. In fact, the Tuli reference at FIG. 1 describes a “platen the slides horizontally along the housing in a horizontal plane.” *Tuli reference*, col. 5, lines 42-45 (emphasis added). The terminating position of the platen is shown by FIG. 2. *Id.*, col. 5, lines 61-62. The optical sensor array of Tuli, which the Office asserts describes the scan head of the present invention, is shown in the same position regardless of the platen position (See element 7 of FIG. 1 and FIG. 2 of the Tuli reference). Therefore, it is respectfully submitted that the Tuli reference fails to teach or suggest an angled way as recited in independent claim 11, let alone a scan head movably mounted to the angled way such that movement of a platen causes the scan head to translate along the angled way.

Accordingly, it is respectfully submitted that the Tuli reference as modified by the Angelo and Scott references does not teach or suggest all of the features of independent claim 11. Thus, Applicant respectfully submits that the Tuli, Angelo, and Scott references, either alone or in combination, fail to teach or suggest all of the features of independent claim 11. Therefore, a *prima facie* case of obviousness has not been established for independent claim 11. Accordingly, Applicant respectfully requests withdrawal of the rejection of claim 11 under 35 U.S.C. § 103(a). Claim 11 and is believed to be in condition for allowance and such favorable action is respectfully requested.

Claims 12-17 depend directly or indirectly from independent claim 11. As such, Applicant respectfully request withdrawal of the 35 U.S.C. § 103(a) rejections of these claims as well.

Claims 18-22

Independent claim 18 is directed to an input device for scanning a biometric image of a fingerprint. The device includes a housing having an angled way. The device also includes a platen moveably mounted to the housing. The platen moves in about a vertical direction. The device additionally includes an encoder target associated with the platen. The encoder target having a grid pattern representing a plurality of binary numbers. The pattern and the platen are associated to allow a scan head to capture a plurality of scan lines such that each member of the plurality of scan lines includes at least a portion of the pattern representing a binary number and at least a portion of the platen. The captured plurality of scan lines are assembled based on the value associated with the captured portion of the pattern representing a binary number. The device also includes the scan head, comprised of at least a light source, the scan head is moveably mounted to the angled way, wherein movement of the platen causes the scan head to traverse a length of the platen at a distance vertically constant from the platen as the platen moves in a vertical direction. The scan head configured, in operation, to capture a scan line of the fingerprint image and a portion of the pattern on the encoder target while traversing the platen. The scan head only captures a scan line of the fingerprint and the pattern when a continuous scan of the pattern identifies a binary number that differs from an immediately previously scanned binary number of the pattern. The device additionally includes an assembler to assemble the captured scan lines into an image representative of the fingerprint, wherein the

captured scan lines are assembled in a sequence based on the binary number captured with each scan line.

It is respectfully submitted that the references fail to teach or suggest every feature of independent claim 18. In addition to the deficiencies of the cited references discussed with respect to independent claims 1 and 11, the references fail to teach additional features recited in claim 18.

It is respectfully submitted that the references fail to teach or suggest the scan head only captures a scan line of the fingerprint and the pattern when a continuous scan of the pattern identifies a binary number that differs from an immediately previously scanned binary number of the pattern. To the contrary, the Tuli reference merely describes identifying the difference among a black and a clear portion of a pattern strip to send a line to the microprocessor. *See Tuli reference*, col. 6, lines 47-58. Differentiating between a black (or opaque) and a clear (or white) element of a repeating pattern strip fails to teach or a continuous scanning of the pattern to identify a binary number that differs from an immediately previously scanned binary number of the pattern. This is in part because a binary number representation of the target encoder may require multiple black and white elements to express a single binary number (see FIGs. 12A and 12B of the Application). Therefore, the simplistic differentiation among black and white of the Tuli reference fails to teach identifying when a binary number expressed by the pattern is different from a previously scanned binary number representation.

Accordingly, it is respectfully submitted that the Tuli reference as modified by the Angelo and Scott references does not teach or suggest all of the features of independent claim 18. Thus, Applicant respectfully submits that the Tuli, Angelo, and Scott references, either alone or in combination, fail to teach or suggest all of the features of independent claim 18. Therefore,

a *prima facie* case of obviousness has not been established for independent claim 18. Accordingly, Applicant respectfully requests withdrawal of the rejection of claim 18 under 35 U.S.C. § 103(a). Claim 18 and is believed to be in condition for allowance and such favorable action is respectfully requested.

Claims 19-22 depend directly or indirectly from independent claim 18. As such, Applicant respectfully request withdrawal of the 35 U.S.C. § 103(a) rejections of these claims as well.

Claims 5-6

Claims 5-6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Tuli reference in view of the Scott reference. Claims 5-6 depend from independent claim 1 discussed previously. As the Tuli reference and the Scott reference either alone or in combination fail to teach or suggest all of the features of independent claim 1, Applicant respectfully requests withdrawal of the 35 U.S.C. § 103(a) rejections of these claims as well.

CONCLUSION

For at least the reasons stated above, claims 1-22 are now in condition for allowance. Applicants respectfully request withdrawal of the pending rejections and allowance of the claims. If any issues remain that would prevent issuance of this application, the Examiner is urged to contact the undersigned – 816-474-6550 or cwfisher@shb.com (such communication via email is herein expressly granted) – to resolve the same. It is believed that no fee is due, however, the Commissioner is hereby authorized to charge any amount required to Deposit Account No. 19-2112 referencing Attorney Docket No. MFCP.139667.

Respectfully submitted,

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